APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/682,149	10/08/2003	Yanling Qi	LSI.79US01 (03-1026)	8199

24319   7590   04/19/2007
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EXAMINER
SEYE, ABDOU K

ART UNIT	PAPER NUMBER
2194	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

Office Action Summary	Application No.	Applicant(s)
	10/682,149	QI ET AL.
	Examiner	**Art Unit**	
	Abdou Karim Seye	2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>02 February 2007</u>.

2a)☒ This action is **FINAL.** 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-3,7,8 and 10-17</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-3,7,8 and 10-17</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>08 October 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   The amendment filed on February 02, 2007 has been received and entered. The

amendment amended Claims 1, 7,11,14 and 17 and cancelled claims 4-6 and 9. The

currently pending claims considered below are Claims 1-3, 7-8 and 10-17.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103 (a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-2, 7-8 and 12-17 is rejected under 35 U.S.C. 103 (a) as being unpatentable over

Do et al **(US 20040172636)** in view of **Stauffer et al.** **(US 6809735)**.

Claims 1, 7, 14 and 17 **Do** teaches a system and method of transmitting computer data

between a host computer and at least one computer data storage device by inserting a

multiple-path driver between driver-stack levels of an operating system operating on

said host computer comprising:

selectively intercepting device commands from upper-level drivers of said operating

system of said host computer (Fig. 4; paragraph 49; filter driver 440 intercepting

functions/commands from upper-level drivers; Fig. 1, paragraph 35)

creating a virtual data path between said multiple-path driver and said computer data

storage devices (Fig. 1, 2a and 2b, paragraph 35 and 37);

selectively directing device commands from said multiple-path driver to a virtual host

bus adapter driver within said multiple-path driver along said virtual path (Fig. 2a,

paragraph 39);

transmitting computer data along more than one physical path between said multiple-

path driver and said computer data storage devices (Fig. 2a, paragraph 39); and,

selectively presenting said computer data storage devices to said upper-level drivers of

said operating system of said host computer as a single virtual computer data storage

device (Fig. 2b, paragraph 41).

But he does not explicitly teach replacing commands of the upper-level drivers and

references to the upper-level function pointers within the operating system with

commands and references to the multiple-path driver. However, in the field of endeavor,

accessing data in hardware space Stauffer teaches a kernel driver replacing a first

command with another command and memory addressing/pointer for referencing (col.

3, lines 40-67, col. 4, lines 1-26 and col. 5, lines 1-13). It would be obvious to one

having ordinary skill in the art at the time the invention was made to modify Do's

invention with Stauffer, because, it would allow data to be to be paged into a resource

address different than it previously occupied without a client driver being aware of a

change, therefore to resolve conflicts between client due to reuse of memory. One

would have been motivated to include a mechanism that would replace one command

with another command including referencing/pointers to multiple path driver in order to

resolve conflicts between clients due to reuse of memory (Stauffer, abstract, col. 5, lines

1-13).

Claims 2 and 8, Do teaches,

utilizing at least one array of computer hard disks as said computer data storage

devices (Fig. 2b, paragraph 41; Fig. 1, paragraph 35).

4. Claim 3 is rejected under 35 U.S.C. 103 (a) as being unpatentable over **Do et al (US
20040172636)** in view of **Iwatani (US 20020023151).**

Claim 3, Do discloses a system and method of transmitting computer data as in claims

1, 7, 14 and 17 above. But he does not explicitly discloses the steps of:

     a. Inserting a part of a multiple-path driver between middle-level device drivers

and host adapter drivers; and

     b. Inserting an additional part of a multiple-path driver into an upper-level

device drivers (SG and SD) to interface with a middle-level device drivers.

However, in the same field of endeavor Iwatani discloses a host apparatus including a multi

Path device driver split into two parts for handling failure of a physical path by allowing an

application to access data through another path in a plurality of access paths set for

connection between host adapters and channel adapters; **SCSI** (fig. 1, paragraph 16; fig. 2,

paragraph 46;fig. 4/102; fig. 1 and 4/102, paragraph 22 and 32). Therefore, it would be

obvious to one having ordinary skill in the art at the time the invention was made to modify Do's

invention with Iwatani's invention to split a multi-path driver in two parts in order to rapidly

detect and correct an error path during transmission of data to storage. One would have been

motivated to separate a multi-path device driver in two part or more in order to rapidly and

appropriately deal with erroneous connection made at a time of maintenance work, by

redirecting path. Therefore to increased productivity of host users and data throughput.

As per claims 10 and 11, they are rejected for the same reason as claim 3 above.

Claim 12, Do teaches,

wherein said set of cables that connect said host bus adapters to said controllers of

said computer data storage devices is electrical (Fig. 1, paragraph 34).

Claim 13, Do teaches,

wherein said set of cables that connect said host bus adapters to said controllers of

said computer data storage devices is fiber-channel (Fig. 1, paragraph 34).

As per claims 15 and 16, they are rejected for the same reasons as claims 12 and 13

above.

Response to Arguments

5. Applicant's arguments filed on February 02, 2007 with respect to claims 1-3, 7-8, 10-17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Krause et al (5815707) discloses dynamic function replacement for streams framework.

Iwatani et al (20050021878) discloses device controller and input/output system. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
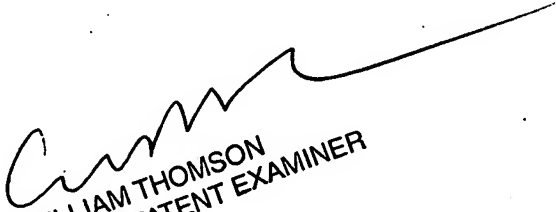
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdou Seye whose telephone number is (571) 270-1062. The examiner can normally be reached on Mon - Fri, 7:30am - 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Thomson can be reached on 571-272-3718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

AKS
April 10, 2007

WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER